A Realistic Evaluation of Two Training Programs on Implementing Skin-to-Skin as a Standard of Care

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ABSTRACT

The authors used realistic evaluation to examine the real-world effectiveness of two 5-day training techniques on sustained optimal skin-to-skin practices that support Step 4 of the revised Baby-Friendly Hospital Initiative (BFHI). The authors found that education alone was insufficient to effect sustainable practice change. Exposure to the 5-day immersion model (Practice, Reflection, Education and training, Combined with Ethnography for Sustainable Success, or PRECESS) alone or combined with education was an effective strategy to change and sustain the standard of care for skin-to-skin practice ($p < 0.00001$). The intended outcome of sustained practice change toward implementation of skin-to-skin care through immersion or a combined approach shows promise and should be repeated in other localities.

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The standard of care for Step 4 of the revised World Health Organization (WHO) and United Nations Children's Fund (UNICEF) Baby-Friendly Hospital Initiative (BFHI) calls for continuous uninterrupted skin-to-skin care beginning immediately after birth and continuing (uninterrupted) until the completion of the first breastfeed (WHO & UNICEF, 2009). Although research about the implementation of the Ten Steps to Successful Breastfeeding of the BFHI shows that the policy, education, and practice changes related to this global program have demonstrated an improvement in breastfeeding rates and child health outcomes (Kramer et al., 2001), implementation of the Step 4 practice of early mother–baby skin-to-skin holding and early breastfeeding alone have the potential to decrease rural Egyptian neonatal deaths by 22% (Edmond et al., 2006).

The time immediately after birth may represent a psychophysiologically 'sensitive period' (Moore, Anderson, Bergman, & Dowswell, 2012). During the first hour after birth, as the mother and baby begin their postpartum relationship, the physiologic

For more information about the Baby-Friendly Hospital Initiative launched in 1991 by the World Health Organization and the United Nations Children's Fund and about the Ten Steps to Successful Breastfeeding, see http://www.unicef.org/programme/breastfeeding/baby.htm For information about Baby-Friendly USA, Inc., see http://www.babyfriendlyusa.org/eng/04.html

groundwork for breastfeeding is enhanced. Infants who suckled at the breast within the first 2 hr after birth transferred an increased quantity of milk on the fourth day postpartum when compared to mothers who began breastfeeding later. In addition, early breastfeeding correlates with "almost exclusive" breastfeeding in the postpartum period (Bystrova, Widström, et al., 2007) as well as positive, observable differences in maternal–child interaction as measured a few days after birth (Widström et al., 1990) and by using a standardized assessment technique (the Parent–Child Early Relational Assessment) 1 year later (Bystrova et al., 2009). The movements of the baby's hands on the mother's breast during the early postpartum period increase the mother's oxytocin response (Matthiesen, Ransjö-Arvidson, Nissen, & Uvnäs-Moberg, 2001), which may be related to the mother's later bonding behavior. The infant's predictable behaviors while skin-to-skin with his mother have been shown to result in more optimal self-regulation (Bystrova, Matthiesen, et al., 2007; Widström et al., 2011), including improved temperature adaptation (Bystrova, Matthiesen, et al., 2007; Christensson et al., 1992). When placed skin-to-skin with his mother soon after birth, a baby will go through nine distinct stages locating the breast and initiating breastfeeding without any help from the staff or his mother (Widström et al., 2011). The duration of skin-to-skin holding is positively associated with exclusive breastfeeding (Bramson et al., 2010).

However, breastfeeding and the biological imperative of the mother and baby remaining together in skin-to-skin contact during the early hours after birth may be at odds with entrenched delivery room routines (Declercq, Labbok, Sakala, & O'Hara, 2009) and understanding the meaning of skin-to-skin care. For example, in an Australian study, midwives reported that they did understand the importance of early skin-to-skin contact between the mother and baby, but continuous, uninterrupted skin-to-skin contact was actually not understood and was rarely practiced (Cantrill, Creedy, & Cooke, 2004). Assessment of the mother and baby, along with caring for and stabilizing them both, may be seen by the peripartum team as two separate responsibilities: the mother as an obstetric patient and the baby as a pediatric patient. Implementing immediate, continuous, and uninterrupted skin-to-skin care following the birth requires the staff to understand the mother and baby as a unit with assessment and stabilization performed on the two together. Although there may be clinically justifiable reasons for separation, most mothers and babies can be cared for together in the first hours after birth.

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This article describes our realistic evaluation of two 5-day training mechanisms: an immersion method which we developed that took place on site in one hospital (Practice, Reflection, Education and training, Combined with Ethnography for Sustainable Success [PRECESS]) and an education program, Training of Trainers (TOT), for the 20-hour WHO/UNICEF training course for the BFHI, which involved staff from eight other hospitals in the same geographic area. The expectation of the TOT mechanism is that participants return to their hospital and educate the staff in the implementation of the principles of the BFHI, including the practice of skin-to-skin after birth. One of the eight hospitals in the TOT group shared staff with the hospital participating in the immersion mechanism. The simultaneous interventions lasted for 5 days.

EVALUATION METHOD

We were interested in understanding how to make sustainable change within a clinical setting, specifically regarding the implementation of skin-to-skin care immediately after birth. We chose *realistic evaluation*, a framework for practice evaluation, as the tool to evaluate our work. Realistic evaluation has as its central purpose to collect empirical evidence through research to create and improve models of practice (Kazi, 2003). Realistic evaluation is not conducted to contribute specifically to scientific knowledge; rather, it is used to inform practitioners (Pawson & Tilley, 1997, p. xiii). According to Pawson and Tilley (1997), being realistic means "providing reasons and resources to enable program participants to change" (p. 215). Realistic evaluation encourages the understanding of the relationship between the *context* (in our evaluation, these are birth practices in nine different hospitals in Upper Egypt) and *mechanisms* (two approaches to skin-to-skin care: immersion and education) and the resulting relationship of the context and mechanisms to the *outcomes* (sustained implementation of the practice of

continuous uninterrupted skin-to-skin care). This is the "CMO" of realistic evaluation (see Figure 1). We used an iterative process in our discussions to define the context, mechanisms, and outcome of sustained implementation of the practice of skin-to-skin care.

The challenge we faced was whether we could develop a low-cost method to change and sustain the practice of continuous and uninterrupted skin-to-skin contact in the first hour after birth until the completion of the first breastfeeding, reflecting the 2006 draft (2009 final) interpretation of Step 4 of the WHO/UNICEF BFHI in the context of staff management of the time after birth in Upper Egypt. When faced with this challenge, it was necessary for us to reimagine the mechanism for driving change. To that end, we collaborated to develop a three-nation project, which began in 2005 to provide Egypt assistance in the reimplementation of the WHO/UNICEF BFHI and in the revitalization, expansion, and sustainability of the BFHI. We decided to accomplish this through training using the WHO/UNICEF "TOT" approach, in which we had prior experience. In addition, we developed the PRECESS mechanism. The acronym PRECESS stands for Practice, Reflection, Education and training, Combined with Ethnography for Sustainable Success. The PRECESS mechanism embraces an ethnographic understanding of current practice and best practice models, evidence-based education, and process-oriented immersion. As invited consultants with limited time to implement change in Upper Egypt, we believed that our purpose was to instill the hospital staff with a sense of personal and professional responsibility—not only for the changes to practice, but for the solutions to the barriers that would be discovered after we had left.

Implementing immediate, continuous, and uninterrupted skin-to-skin care following the birth requires the staff to understand the mother and baby as a unit with assessment and stabilization performed on the two together.

This collaborative between Egyptian, U.S., and Swedish teams included exploring Sweden's best practices and specific elements of the BFHI, especially skin-to-skin and Step 4 of the Ten Steps to Successful Breastfeeding. We examined by observing current practices in Egypt, including Upper Egypt. We found that no hospital in Upper Egypt was practicing skin-to-skin care immediately after birth. These observations were confirmed by the baseline, on-site study

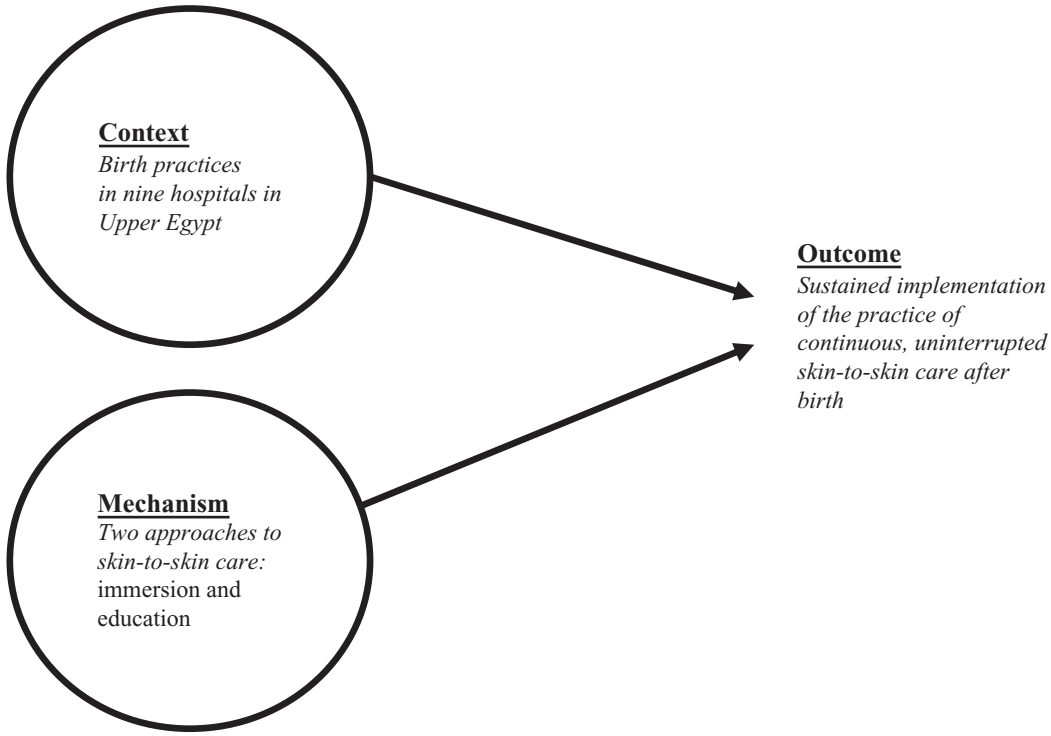

Figure 1. The Realistic Evaluation Paradigm. Adapted from *Realistic Evaluation*, by R. Pawson and N. Tilley, 1997, London, United Kingdom: Sage.

We worked from the premise that any change in practice needs to grow from within the already existing environment to succeed.

conducted by the Egyptian Lactation Consultant Association (ELCA), with funding from UNICEF (Abul-Fadl, 2008). After examining the literature related to practice change, we concluded that work practice video ethnography and lactation content expertise would form the basis of our two interventions: immersion and education. The immersion hospital was selected by the Ministry of Health. It is a rural hospital located in an area of Upper (Southern) Egypt and with limited resources. There are approximately 60,000 villagers in the area. The immersion hospital has approximately 300 births per month. Of these births, 50 or fewer per month are cesarean births.

Simultaneously, leadership staff from the obstetrics and pediatric departments of the remaining eight hospitals in the governorate participated in an education program organized by the Ministry of Health and the ELCA and conducted by members of the consulting team, all of whom had previous experience teaching the course. At the time of the trainings, none of the hospitals in the governorate had a policy or had implemented skin-to-skin care following birth.

Four months after the trainings, the ELCA conducted a new national cross-sectional descriptive study to investigate whether or not practices that support the BFHI were being implemented in Egyptian public hospitals (Abul-Fadl, 2008). The data for this national study were collected by interviewing, in person, 10 randomly selected hospital staff members using a structured interview format. We used data from the BFHI study regarding the specific practice of skin-to-skin care after birth to examine whether or not there was a sustained effect in the clinical practice of skin-to-skin care in the hospitals that participated in the two training mechanisms.

MECHANISM I: IMMERSION

We created a methodology of video ethnography and interaction analysis (Jordan & Henderson, 1994), combined with expert education and practical application of the new knowledge (PRECESS) to document work practice in the hospital and to assist the staff in seeing their own work and identifying the barriers and solutions unique to their context. We hoped that this would allow the context to underlie all solutions, including cultural barriers.

A key belief that we shared as we developed this immersion mechanism was that the practitioners on site were the experts in their context. This is an essential premise of ethnographic work. Although the PRECESS team members, as outside experts, had information about research studies and experience with the practice of skin-to-skin care, the hospital staff members were the experts in their hospital—its practice, history, and people. We worked from the premise that any change in practice needs to grow from within the already existing environment to succeed. As external consultants, we could offer information and mentor the practitioners; however, we acknowledged that staff needed to integrate the practice into their routine. We hoped to achieve this goal through the use of the features of our model: practical training combined with interactive workshops that included watching videos of practice. The PRECESS team consisted of researchers and practitioners in midwifery with an expertise on skin-to-skin care in the first hour after birth and an experienced ethnographer with a background in changing work practice.

METHODS

We designed the PRECESS mechanism to take place over 5 days in a single hospital. The PRECESS methodology has five features: (a) educating the staff about the new procedure with consultants in the field; (b) administering the practical application of the new procedure, with the PRECESS team and staff working together, and continuing the educational process; (c) videotaping the evolving process as the hospital staff work to implement the new procedures; (d) conducting an interaction analysis workshop to review and discuss barriers and solutions; and (e) administering the continuing application of the procedure.

Step 1

Using large group lecture, small group discussion, and informal hallway conversations, we offered the staff numerous opportunities for education. All on-duty staff, obstetricians, pediatricians, surgeons, and anesthesiologists—a total of 15 over 5 days—as well as 33 nurses and nursing students and seven community workers participated. As we moved out of the formal classroom setting and to the labor and delivery/surgery ward, there were opportunities for one-on-one questions; we also created an environment in the ward where any "downtime" was an opportunity for small group discussions.

Step 2

The PRECESS team members then had the opportunity to demonstrate, with assistance from the staff, the practical application of placing and monitoring a baby who was skin-to-skin with the mother for the first hour after birth in the delivery or surgery area. This scenario encouraged more questions as the implementation of the practice of skin-to-skin illuminated practical difficulties and questions. Education of the staff continued in the birth and/or surgery ward. Births in the facility are attended by nurses, nursing students, obstetricians, and pediatricians (some are neonatologists). If the birth is via cesarean surgery, an anesthesiologist also attends. There are no midwives on staff. There are no support persons (such as family members) with the mother during the birth.

The PRECESS team members coached staff in the hands-on application of immediate and continuous skin-to-skin contact postvaginal and postcesarean births and provided clinical and practical assistance to demonstrate the appropriate practice in the current setting and to mentor the staff during the transition.

Step 3

After receiving the parent's consent, one member of the team unobtrusively recorded the evolving process by videotaping the activities in the birth/surgical ward. Video was recorded of the interactions between staff, the mother's situation, and the experience of the baby.

Step 4

Birth often happens in a rush of activity and can require focused concentration and continuous action and reaction, rather than allowing time for discussion and contemplation. We conducted interaction analysis workshops to provide staff with an opportunity to examine their actual actions and reactions and to discuss the process in a relaxed and thoughtful setting. The PRECESS team used iterative analysis to choose rich segments of video and prepared them for the workshop, which was held on the morning of the third day. During this workshop, the video was reviewed with a mixed group of 18 hospital staff who were able to participate, including physicians (obstetrician specialists, pediatricians, anesthesiologists, pharmacologists, and neonatologists), nurses (head nurses, staff nurses, student nurses), and administration. During an interaction analysis workshop, the selected video segments were played and could be stopped at anytime with a question or comment from the group. It was possible to rewind the video segment to review it again.

The PRECESS team members were available to facilitate discussion during the workshops, to offer expert opinion, to praise good practice, and to warn about possible dangers. However, this feature was integrated into conversation, not presented in lecture format.

The responsibility of the workshop rested with the participants as they examined and discussed their evolving practice and worked as a group to identify and solve barriers in their context. This process elicited lively discussion, but not disagreement, as hospital staff noticed barriers on the video, discussed barriers they had been thinking about but perhaps not sharing, and could see the effectiveness of the process they had begun. Because some staff were not able to attend the planned interaction analysis workshop, the PRECESS team made themselves available in-between births to play the video segments and facilitate discussion.

Step 5

The immersion training continued for the 5 days that the PRECESS team was on site. The staff was encouraged to continue to ask questions and gain knowledge while they continued the practice of skin-to-skin. The videotaping continued, and the PRECESS team conducted daily iterative analysis with more segments for informal interaction analysis workshops. The staff discussed and reviewed barriers and solutions to the application of a new policy (see Table 1). This process occurred with the PRECESS team, and the intent was to encourage the continuation of problem solving after the team left. Solving current barriers revealed new barriers, staff members described, that could stand in the way of new practices.

MECHANISM II: EDUCATION

During the same 5 days, the Ministry of Health and the ELCA organized an education program (entitled "How to Teach the 20-Hour WHO/UNICEF Training Course for the BFHI"), which was presented by experienced trainers to physicians, nurses, and staff members who had been selected by the governorate's hospitals that were not participating in the immersion training. This TOT education mechanism was a face-to-face format with the first 2 days

TABLE 1
Examples of Barriers and Solutions Raised by the Hospital Staff During the Interaction Analysis Workshop

Barrier	Solution
Mothers are not able to see the baby when skin-to-skin.	Nurse can put a rolled gown or a pillow under mother's head, or mother's head can be raised with staff member's hand.
Mothers' clothes. (Street clothes are worn for vaginal births and rolled up under the mother's chin to facilitate skin-to-skin. This causes a physical barrier to the mother seeing her baby.)	Mother can wear a gown open in the front; however, this is an ongoing financial problem.
Mother in pain during episiotomy repair.	Use local anesthesia.
Exposure of mothers' breasts during skin-to-skin is a problem for modest women.	Cover baby's body and mother's body with a sheet or blanket.
Space and time (staff members, surgery, or delivery area are needed for other births).	Transfer mothers and babies into a nearby room for immediate postpartum care.
Distressed baby/mother.	Transfer baby to the NICU and return to the mother in the delivery room/postpartum room to start skin-to-skin after both are stable.

presented by the trainers and the last 3 days presented by the participants as they practiced the lessons and competencies they would deliver to the staff in their own hospitals.

The WHO/UNICEF curriculum was prepared by the ELCA and distributed on computer disc to each participant. The disc included the WHO/UNICEF information for trainers, with course objectives, curriculum, and knowledge checks as well as the BFHI course prepared as a PowerPoint presentation (in both English and Arabic) with the intent that the participants would use the presentation when they educated the staff of their own hospital.

The agenda for the first 2 days of the education program included information about the BFHI and, specifically, the staff education and competencies required. The principles of adult education were also included. The remaining 3 days of the program featured participants' practice presentations of sections of the course and site visits to a local teaching hospital to practice the competencies specified in the WHO/UNICEF curriculum. The competencies include counseling parents about their infant-feeding choice, teaching parents about hand expression and cup-feeding techniques, and assessing correct latch for breastfeeding as well as skin-to-skin care in the first hour. The key points and short-term objectives of the WHO/UNICEF 20-hour course are outlined in Table 2.

TABLE 2
The WHO/UNICEF 20-Hour Course to Support the Baby-Friendly Hospital Initiative

Key points:
- Breastfeeding is important for mother and baby.
- Most mothers and babies can breastfeed.
- Mothers and babies who are not breastfeeding need extra care to be healthy.
- Hospital practices can help (or hinder) baby- and mother-friendly practices.
- Implementing the Baby-Friendly Hospital Initiative helps good practices to happen.

Short-term objectives:
- To help equip the hospital staff with the knowledge and skill base necessary to transform their health facilities into baby-friendly institutions through implementation of the Ten Steps to Successful Breastfeeding.
- To sustain policy and practice changes.

RESULTS AND DISCUSSION

Four months after the trainings, a national on-site survey of hospital compliance with all of the steps of the BFHI was conducted. When we reviewed the data, we found a marked difference between the reported practices of the hospital whose staff had experienced the immersion training compared to the hospitals whose staff had attended the training program (see Table 3). The data revealed that the hospitals that had received conventional TOT education (Hospitals A–G) could correctly answer questions about the benefits of skin-to-skin and the benefits of early initiation of breastfeeding better than the hospital with the PRECESS intervention (Hospital H). Only staff at the hospital that experienced the PRECESS immersion model (Hospital H) and the hospital that had staff who attended the TOT education program and, in addition, shared staff with the PRECESS immersion model (Hospital I) reported that their colleagues were actually practicing skin-to-skin after birth as the standard of care. The staff

TABLE 3
Answers Related to the Practice of Skin-to-Skin, as Reported by the Hospitals in the Upper Egypt Governorate in Which the Intervention Took Place

Hospital	A	B	C	D	E	F	G	H	I
Method	TOT	TOT	TOT	TOT	TOT	TOT	TOT	PRECESS	Both
Number of staff interviewed	9	4	10	10	10	10	10	10	10
Staff who can mention the benefits of early skin-to-skin care	5	4	10	10	0	0	6	6	10
Staff who can mention the benefits of early breastfeeding initiation	5	4	6	10	10	10	0	4	10
Staff who report that their colleagues practice skin-to-skin care	0	0	0	0	0	0	0	8	10

Note. TOT = Training of Trainers; PRECESS = Practice, Reflection, Education and training, Combined with Ethnography for Sustainable Success. The staff of the TOT hospitals (A through G) attended the educational program only. The staff of the PRECESS hospital (H) received the immersion method only. The staff of the hospital designated as "Both" (I) experienced immersion plus the educational program.

at the remaining seven hospitals (Hospitals A–G), which received TOT education, reported that none of their colleagues routinely introduced skin-to-skin care immediately after birth and continuing until the completion of the first breastfeeding.

Our statistician manually calculated the *p* value for the question regarding "staff who report that their colleagues practice skin-to-skin care" for Hospitals A–G (conventional TOT education) versus Hospital H (PRECESS immersion model) relating to the actual practice of skin-to-skin care after birth and found that it was significant ($p = < 0.00001$). There was no statistical difference ($p = 0.237$) between the two hospitals that shared staff: Hospital H (PRECESS immersion model) and Hospital I (both the conventional TOT education and the PRECESS immersion model).

This study provided us with an opportunity to apply the framework of realistic evaluation to examine the effectiveness of two mechanisms designed to sustain practice change. Realistic evaluation has been examined in other health settings (Rycroft-Malone, Fontenla, Bick, & Seers, 2010) and was especially effective in helping us to clarify the role of context as well as the role of mechanisms (immersion or education) on outcome. This framework has been described by Pawson and Tilley (1997) as context (C) + mechanism (M) = outcome (O). In realistic evaluation, the context was birthing staff in Upper Egypt who had been directed to change practice to meet the criteria provided by the WHO/UNICEF revised BFHI. The mechanisms were immersion (I), education (II), or both delivered within the same 5-day time period. The outcome was the change in practice to immediate, continuous, and uninterrupted skin-to-skin care continuing until the completion of the first breastfeeding. We found that in the context of hospitals in one governorate in Upper Egypt, immersion was significantly more effective as a mechanism of changing practice compared to education. The serendipitous finding that a combination of the WHO/UNICEF education and immersion (Hospital I in Table 3) was the most effective mechanism to change practice is an interesting discovery and warrants further consideration.

We reviewed the literature and found that education courses similar to the one taught to our participants in the TOT mechanism (combining theoretical knowledge and practical skill) have been found to change outcomes in other contexts. In Chile, a similar 3-day course was related to changing the clinical breastfeeding support practices of health professionals (Valdés et al., 1995). In rural Nigeria, community health workers who participated in a course improved breastfeeding outcomes (Davies-Adetugbo & Adebawa, 1997). In the context of implementing the BFHI in Italy, an educational program that increased the knowledge of hospital workers on breastfeeding practices improved the breastfeeding outcome of exclusive breastfeeding in the early postpartum period as well as full breastfeeding at 3 and 6 months (Cattaneo & Buzzetti, 2001). Also in Italy, Taddei, Westphal, Venancio, Bogus, and Souza (2000) reported that training improved exclusive breastfeeding by 29%, whereas full breastfeeding increased by 20%. In a French university hospital, the effectiveness of a 3-day training program for maternity ward professionals who worked with healthy term babies was studied in a before-and-after design with the finding that the mechanism of education increased the duration of any breastfeeding from 13–16 weeks (Vittoz, Labarere, Castell, Durand, & Pons, 2004).

Our evaluation's outcome might be considered more specific because we focused only on the practice change of skin-to-skin holding in the immediate postpartum period; but when questioned, the staff indicated that they knew the reasons for skin-to-skin care, but their colleagues were not practicing it.

In an early systematic review of the literature conducted to understand which medical practices promoted optimal breastfeeding outcomes, Winikoff and Baer (1980) found that contact between mother and baby soon after birth is an optimal practice. However, they also found that education without policy and practice change did not significantly change breastfeeding outcomes in the studies they reviewed. One of the least influential practices was education delivered to health-care practitioners without concomitant policy change. In our work, the mechanism of education was not necessarily combined with policy change. In addition, as in the studies cited previously, the information about skin-to-skin care was included as one of many topics. Attendance at the TOT was voluntary, as was the training of staff members. When training is voluntary, outcomes and practice may not change (Iker & Mogan, 1992).

On the other hand, the immersion mechanism in our realistic evaluation was context specific. Barriers and solutions were identified, which might relate only to the immersion hospital. The PRECESS technique of education that is specific to the context, video ethnography, and interaction analysis of births and birth-related practices in the immersion hospital may have made the implementation of the practice change of continuous uninterrupted skin-to-skin care until the completion of the first breastfeed more possible.

CONCLUSION

We found that, in the context of reinvigorating the BFHI in Upper Egypt, education alone may be insufficient to effect sustainable practice change. The 5-day immersion (PRECESS) mechanism, alone and combined with education, was an effective strategy to change the standard of care. Although the findings related to the immersion mechanism combined with education are encouraging, realistic evaluation does not allow generalization into different contexts. However, given the promising results, applying PRECESS in other settings is warranted.

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